

## **AMENDMENTS TO THE DRAWINGS**

In response to the objection to the drawings, a single replacement sheet having corrected Figures 1L and 1N is attached.

In Figure 1L, "36P-E" has been changed to "36P".

In Figure 1N, "30" has been changed to "40E".

## REMARKS

### Withdrawn Claims

The withdrawn claims have been canceled from the present application. The subject matter of the withdrawn claims is being pursued in related applications. In addition, dependent claims 262-272 have been added. All of the added claims read on the elected species Embodiment II, which is the component 16 of Figures 4A-4C and 1K.

### Objection to Drawings

The drawings have been objected to because there is no 36P-E in Figure 1L. In response, a Replacement Sheet with a corrected Figure 1L is attached. In Figure 1L "36P-E has been changed to "36P".

The Replacement Sheet also contains a corrected Figure 1N in which "30" has been changed to "40E" to correspond to the description on page 32, line 9 of the specification.

### Grounds of Rejections

Claims 170-179 have been rejected under 35 USC §112, first paragraph, because the specification states a chip scale package has an outline about the same as that of the outline of the die rather than "equal to that of the die", as recited in independent claim 170.

Claims 170-175 have been rejected under 35 USC 103(a) as being obvious over Kinsman et al. (US Patent No. 6,717,245) in view of Mountain (US Patent No. 6,013,534) and Wakabayashi et al. (US Patent No. 6,607,970).

Claims 176-177 have been rejected under 35 USC 103(a) as being obvious over Kinsman et al. (US Patent No. 6,717,245) in view of Mountain (US Patent No. 6,013,534), Wakabayashi et al. (US Patent No. 6,607,970) and Farnworth et al. (US Patent No. 6,620,731).

Claim 178 has been rejected under 35 USC 103(a) as being obvious over Kinsman et al. (US Patent No. 6,717,245) in view of Mountain (US Patent No. 6,013,534), Wakabayashi

et al. (US Patent No. 6,607,970) and Akram (US Patent No. 6,544,821).

Claim 179 has been rejected under 35 USC 103(a) as being obvious over Kinsman et al. (US Patent No. 6,717,245) in view of Mountain (US Patent No. 6,013,534), Wakabayashi et al. (US Patent No. 6,607,970) and Gilleo et al. (US Patent No. 6,228,678).

The rejections under 35 USC §112, and the rejections under 35 USC §103, are traversed for the reasons to follow.

### 35 USC §112, First Paragraph Rejections Of Claims 170-179

With regard to the 35 USC §112, first paragraph rejections of claims 170-179, the Office Action states:

"The specification states "one type of semiconductor component is referred to as a chip scale package (CSP) because it has an outline or "footprint" that is about the same as the outline of the die contained in the package" (See Page 2 Lines 1-16). However, the claim states that the component has an outline equal to that of the die (See Claim 170). There is a difference between "is about" and "equal".

The above statement is submitted to be incorrect. Claim 170 did not state the component has an outline equal to that of the die. Rather, claim 170 stated: "the component has an outline equal to that of the die plus the selected thickness of the first polymer layer on each peripheral edge". The outline of the component is thus not equal to that of the die, but is slightly larger, or "about the same" as that of the die. The recitation in claim 170 was thus consistent with the specification.

However, in order to make this recitation clearer, claim 170 has been amended to recite that the component has "a chip scale outline corresponding to the outline of the die plus the selected thickness of the edge polymer layers". The edge polymer layers 40 are shown in Figure 1K, and are described on page 27, lines 28-29 of the

specification. In addition, antecedent basis for the "chip scale outline" recitation is contained on page 3, line 19 of the specification.

35 USC §103(a) Rejections Of Claims 170-175 Over Kinsman et al., Mountain and Wakabayashi et al.

Independent claim 170 has been amended to include additional recitations which further distinguish the claimed component from the prior art. As argued with respect to the 35 USC §112 rejections, amended claim 170 recites "edge polymer layers of a selected thickness on the peripheral edges." Amended claim 170 also recites that the component is "encapsulated on six sides" but still has "a chip scale outline".

The claimed component includes a thinned die, which decreases the thickness. Additionally, the claimed component is encapsulated on six sides, but still has a chip scale outline. Admittedly, thinned dice (e.g., Mountain), encapsulated dice (e.g., Wakabayashi), and chip scale components (e.g., Kinsman et al.) are known in the art. However, this combination of features in a single component is submitted to be novel and unobvious over the art.

In this regard, under 35 USC §103 claims are to be evaluated "as a whole". As observed by the Federal Circuit in Jones v. Hardy, 727 F.2d 1524, 220 USPQ 1021 (Fed. Cir. 1984):

"The "difference" may have seemed slight (as has often been the case with some of history's great inventions, e.g., the telephone), but it may also have been the key to success and advancement in the art resulting from the invention. *Further, it is irrelevant in determining obviousness that all or all other aspects of the claim may have been well known in the art.*" (italics added)

Applicant would further argue that the proposed motivation for the combination of references is not from

the view point of one skilled in the art at the time of the invention. The Office Action states that the motivation for the proposed combination of Mountain and Kinsman as being advantageous "in reducing package size". The Office Action states the motivation for the combination of Kinsman and Wakabayashi as "preventing water or moisture from entering".

Admittedly, thinness and moisture prevention are desirable features in a semiconductor component. In this regard, all semiconductor components should be thin and moisture resistant, so the industry is striving for these characteristics. However, if the prior art is assessed from the viewpoint of one skilled in the art at the time of the invention, the proposed combination of references for achieving these characteristics is not readily apparent. Specifically, the unique wafer level fabrication method outlined in Figures 1A-1K allows the component to be constructed with the claimed combination of features. A component with this combination of features would be difficult to volume manufacture without the disclosed fabrication method.

35 USC §103(a) Rejections Of Claims 176-177 Over Kinsman et al., Mountain, Wakabayashi et al. and Farnworth et al.

As the 35 USC §103 rejections of claims 176-177 are also based on the combination of Kinsman, Mountain and Wakabayashi the above arguments are restated.

Applicant would further argue that although conductive vias are known in the art, as exemplified by Farnworth et al., they have not heretofore been used on a thinned die. In addition, the proposed motivation of adding the conductive vias of Farnworth et al. to the claimed component does not appear to be valid. In this regard, the stated motivation is that the conductive vias aid "in providing electrical communication between the integrated circuit and the contacts". However, the integrated

circuits, die contacts and terminal contacts on the claimed component are already in electrical communication, or the component wouldn't function.

35 USC §103(a) Rejection Of Claim 178 Over Kinsman et al., Mountain, Wakabayashi et al. and Akram

As the 35 USC §103 rejection of claim 178 is also based on the combination of Kinsman, Mountain and Wakabayashi the above arguments are restated.

35 USC §103(a) Rejection Of Claim 179 Over Kinsman et al., Mountain, Wakabayashi et al. and Gilleo et al.

As the 35 USC §103 rejection of claim 179 is also based on the combination of Kinsman, Mountain and Wakabayashi the above arguments are restated.

New Dependent Claims

In addition to amended independent claim 170 "taken as a whole" being unobvious over the art, new dependent claims 262-272 recite additional features which in combination are submitted to define unobvious subject matter.

New claim 262 recites "the backside comprises a planar surface." Antecedent basis for this recitation is contained on page 23, lines 31-32 of the specification.

New claim 263 recites "the backside comprises a polished surface." Antecedent basis for this recitation is contained on page 24, lines 26-27 of the specification.

New claim 264 recites "the second polymer layer comprises a tape material." Antecedent basis for this recitation is contained on page 25, lines 12-14 of the specification.

New claim 265 recites "the first polymer layer on each edge comprises a portion of a polymer filled trench." Antecedent basis for this recitation is contained on page 29, lines 28-30 of the specification.

New claim 266 recites "the second polymer layer includes at least one pin one indicator." Antecedent basis for this recitation is contained on page 25, lines 28-30 of the specification.

New claim 267 recites "the first polymer layer includes at least one pin one indicator." Antecedent basis for this recitation is contained on page 25, lines 30-31 of the specification.

New claim 268 recites "the thinned die comprises a tested and burned in die." Antecedent basis for this recitation is contained on page 28, lines 10-12 of the specification.

New claim 269 recites "the thinned die is contained on a semiconductor wafer having a polymer support dam proximate to edges thereof." Antecedent basis for this recitation is contained on page 20, lines 31-32 of the specification.

New claim 270 recites "the first polymer layer comprises a first polymer material and the second polymer layer comprises a second polymer material." Antecedent basis for this recitation is contained on page 25, lines 1-12 of the specification.

New claim 271 recites "the first polymer layer comprises parylene." Antecedent basis for this recitation is contained on page 23, line 25 of the specification.


New claim 272 recites "the edge polymer layers form a recess and the second polymer layer is within the recess." The edge polymer layers 40E are described on page 32, lines 7-10 of the specification. In addition, the edge polymer layer 40E are shown in corrected Figure 1N. The recess (no reference numeral) is described on page 32, line 1, and is shown in Figure 1L.

Conclusion

In view of the amendments and arguments, favorable consideration and allowance of amended claims 170-179 and new claims 262-272 is respectfully requested. Should any issues arise that will advance this case to allowance, the Examiner is asked to contact the undersigned by telephone.

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